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Mental health and associated factors among young offenders in Chile: a cross-sectional study

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ABSTRACT

Background *Few studies in Latin America have explored mental disorder among young offenders, or variables associated with it.*

Aims *Our aim was to test for associations between childhood adversity or substance misuse and psychiatric disorders among young offenders.*

Methods *Sentenced adolescent offenders were recruited from young offenders' institutions or community centres provided by the Chilean National Service for Minors. Psychiatric disorders were assessed using the Mini International Neuropsychiatric Interview, conducted by trained psychologists. A trained sociologist used an ad hoc interview to collect information about childhood experiences, including parenting, trauma, education and substance misuse. Multivariable logistic regressions were used to analyse data.*

Results *The most prevalent psychiatric disorders among the 935 participants were marijuana dependence disorder, major depressive disorder, and anxiety disorders. Substance use disorders were less frequent among young offenders who were serving their sentence in young offenders' institutions than among those serving in community centres and more frequent among those who started to use marijuana at an earlier age. Among other variables, childhood maltreatment was related to major depressive disorder, and maternal death to anxiety disorders. Higher educational status was related to a lower frequency of depressive and anxiety disorders.*

Conclusions *Our findings suggest that greater efforts must be made to identify vulnerable young people much earlier. Few of these young offenders with mental health problems had been well adjusted in health, education or socially before this period of detention.* © *2017 The Authors. Criminal Behaviour and Mental Health Published by John Wiley & Sons Ltd*

Introduction

Chile has one of the largest prison populations in the world, with 242 prisoners per 100,000 people (World Prison Brief, 2016). A total of 432,764 individuals were arrested in Chile during 2014; 8.0% of them were under 18 years old (Fundación Paz Ciudadana, 2015). In the same year, 94,689 people were convicted, 45% of them serving their sentence in jail; 10,338 of these were young offenders, with 15% serving their sentence in prison (Fundación Paz Ciudadana, 2015). Since 2008, the number of young people convicted of a crime has been increasing steadily (Fundación Paz Ciudadana, 2015).

In Chile's capital city, Santiago, about 18% of the general adolescent population has a mental disorder (Vicente *et al.*, 2012) and about 21% of young adults (Vicente et al., 2006). The prevalence of mental pathology among young offenders, however, appears to be much higher. Internationally, studies show that most of the young people who enter the penal system suffer from a psychiatric disorder (Fazel et al., 2008). A systematic review with brought-together data from 13,778 boys and 2,972 girls (mean age 15.6 years) in juvenile detention and correctional facilities showed a high prevalence of mental disorders; over half had a conduct disorder (53% among boys and girls; Fazel et al., 2008). Washburn et al. (2008) conducted one of the most extensive individual studies of this population to date, interviewing 1,829 10–18 year-olds who had been arrested and detained in Cook County, Illinois. They found that two-thirds of the boys and nearly three-quarters (74%) of the girls had a psychiatric disorder according to version 2.3 of the Diagnostic Interview Schedule for Children. Another study, representative of the population of 12–18 year-old boys incarcerated in the Netherlands (n = 204), showed that 90% of the participants had at least one psychiatric diagnosis, also based on the Diagnostic Interview Schedule for Children; disruptive behaviour (75%) and substance use (55%) disorders were the most prevalent disorders (Vreugdenhil et al., 2004). A larger Dutch study comparing native with ethnic minority defendants aged 12–17 years found that about three-quarters of each group had a mental disorder (77% and 74% respectively; Vinkers and Duits, 2011).

In these northern hemisphere studies, in developed countries, the prevalence of psychiatric disorders among young offenders seems to be similar. The few such studies available in Chile have shown a rather lower prevalence of psychiatric disorders ranges (62%: Fundación Tierra Esperanza, 2013; 64%: Rioseco et al.,

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2009) and substance use disorders to be the most prevalent. Recently, however, we presented a study of 489 12–17 year-old offenders, among whom we found that 86% suffered from a major mental disorder, with substance use disorder being the most prevalent (Gaete et al., 2014).

It may be that a number of personal or environmental variables increase the risk of psychiatric pathology in this population. Childhood maltreatment has been cited (Gretton and Clift, 2011; Moore et al., 2013), as has sexual abuse (Gretton and Clift, 2011; Lader et al., 2000), death of a parent/sibling (Lader et al., 2000), low parental educational background (Maniadaki & Kakouros, 2008), poverty (Maniadaki & Kakouros, 2008), history of antisocial behaviour (Ginner Hau, 2010), history of homelessness (Lader et al., 2000), and substance use at an early age, cannabis in particular (Miettunen et al., 2014). Again, most of these studies were conducted in developed countries; to the best of our knowledge, there have been no Latin American studies specifically exploring the association between psychiatric disorders and such variables among young offenders. We found only one Chilean study that explored the differences between adolescent offenders and general population controls in their mental health, educational achievements, intellectual capacity and home life and parental history of psychopathology (Rioseco et al., 2009). The general aim of this study was to explore the association between childhood experiences and psychopathology among young offenders. Our hypotheses were:

(1) a childhood history of stressful events is associated with current depressive, anxiety and substance use disorders;
(2) an individual's history of offending under 14 years old is associated with current depressive, anxiety and substance use disorders;
(3) an individual's history of drug use under 14 years old is associated with current depressive, anxiety and substance use disorders.

Methods

Participants

All of the participants were part of a longitudinal study funded by a Fondecyt grant (N1121107), of which the aim was to determine the role of substance abuse in the criminal careers of young offenders. Written authorisation was obtained from the National Service for Minors (*Servicio Nacional de Menores*, SENAME) and from the directors of the centres in which participants were serving their sentence. In this study, we used convenience sampling because we wanted to select adolescents under sentence in geographical areas close to or in the city of Santiago (Regions V, VI and Metropolitan). There were very few girls in this condition in Chile (7.6%) (Servicio Nacional de Menores, SENAME, 2013), so we opted to include only boys. The total number of male offenders in the selected

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Regions of Chile during the time of collecting the data was 2,213 (Total in Chile: 4,088; Servicio Nacional de Menores, 2013). Our sample of 935 participants, therefore, corresponded to 42% of the eligible population.

Consent was sought in two different ways: for those under 18, parents or legal custodians were asked for consent, and those aged 18 years and over provided their own consent.

Measurements

Demographic variables. Data on age, substance use history, criminal history and life events were collected at interview. The schedule was designed by a team of researchers at the Pontificia Universidad Católica de Institute of Sociology in Chile. The interview lasted approximately 45 minutes and was conducted by trained sociologists.

Psychiatric diagnosis. Psychiatric diagnoses were made after Mini International Neuropsychiatric Interviews (MINI) by trained psychologists. The MINI is a semi-structured interview which lasts approximately 30 minutes and allows for exploration of symptoms commonly found in the most prevalent mental disorders according to criteria derived from the fourth version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; Amercian Psychiatric Association, 2000). The MINI has been widely used in research worldwide (Sheehan et al., 1998; Sheehan et al., 2010), and the authors have prior experience of using it in other studies conducted in Chile (Araya et al., 2013; Araya et al., 2003). There are two versions of the MINI, one used to assess adults and another to assess children and adolescents (MINI KID). The age cut-off for the MINI was 17/18. Both, the MINI for adults and MINI KID have been translated into Spanish and validated (Bobes, 1998). For participants over 17 years old, we used the MINI for adults and for the rest the MINI for children. Because of the limited time available for the interview, evaluation of psychopathological conditions that would require more time and expertise, including psychotic disorders and (hypo) manic episodes, autistic spectrum disorders and eating disorders, were excluded. Keeping the interview as short as possible may also help increase the reliability of the information collected by avoiding excessive fatigue. Some disorders were only assessed in specific versions of the MINI.

The MINI KID includes disorders that are more prevalent among this population such as separation anxiety disorder, specific phobia, attention deficit hyperactivity disorder (ADHD), conduct disorder and oppositional defiant disorder. The MINI for adults does not include the disorders mentioned earlier but does include the assessment of antisocial personality disorder, which is not included in the MINI KID.

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Procedure

After obtaining authorisation from the directors of the centres where participants were serving their sentence and receiving consent from the legal representatives of the offenders, all centres were visited and a suitable place to perform the interviews was arranged. The location was considered appropriate if it met two conditions: safety of the interviewer and privacy for the participant. The two interviews with the participants (one with the sociologist and the MINI with the psychologist) were conducted on the same day and were separated by a break. Any participants who were considered to be under the influence of any substance of abuse on the day of the interview were excluded from the analyses.

The dependent variables. The dependent variables were dichotomous (presence or absence of the disorder). We explored predictive models for three main groups of pathologies: depression, anxiety and substance use disorders. Depressive disorders included major depressive episode or dysthymic disorder. Anxiety disorders included the presence of any of the following: generalised anxiety disorder, panic disorder, post-traumatic stress disorder, agoraphobia, social anxiety disorder or obsessive–compulsive disorder. Disorders due to substance use included any dependence on or abuse of the following substances: alcohol, marijuana, nicotine, cocaine (including cocaine paste), and other drugs (tranquilizers, stimulants, inhalants or hallucinogens).

Independent variables. Three types of variables were included: (i) stressful life events, such as a history of homelessness or suffering physical abuse, coded yes (1) or no (2); (ii) age of onset of problem or criminal behaviours or illegal drug use, coded categorically (0 = never/did not initiate behaviour or had initiated behaviour at 14 years or older; 1 = had initiated at age younger than 14 years); and (iii) nature of sentence (1 = offenders in community programmes with no imprisonment; 2 = offenders who were imprisoned in closed or semi-closed centres). See Tables 1 and 2 for the list of these variables.

Statistical analyses

First, prevalence figures were calculated, as percentages with a 95% confidence interval. Association analyses were conducted using multivariable logistic regressions. There were missing data only for exposure variables related to life events, ranging from 1.5% (most of them) to 5.1% (history of father in prison). There were no missing data on age of onset of behavioural problems or substance use. Disorder data were rarely missing (1.2% on any substance use disorder to 2.3% on any depressive disorder). Non-adjusted and adjusted logistic regression models were generated. The adjusted models included all covariates. The statistical package STATA 12.1 was used for all of the analyses.

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Table 1: Age of onset of criminal behaviours and illegal drug use.

Variable	Age of onset			
	Never or >14		≤14	
	n	% (95% CI)	*n*	% (95% CI)
Criminal behaviours				
Theft	259	27.7 (24.9–30.7)	676	72.3 (69.3–75.1)
Grand theft	546	58.4 (55.2–61.5)	389	41.6 (38.5–44.8)
Violent robbery	413	44.2 (41.0–47.4)	522	55.8 (52.6–58.9)
Drug trafficking	915	97.9 (96.7–98.6)	20	2.1 (1.4–3.3)
Violent crime	801	85.7 (83.3–87.8)	134	14.3 (12.2–16.7)
Public order offence	797	85.2 (82.8–87.4)	138	14.8 (12.6–17.2)
Carrying of firearms	327	35.0 (32.0–38.1)	608	65.0 (61.9–68.0)
Illegal drugs				
Marijuana	165	17.7 (15.3–20.2)	770	82.4 (79.8–84.7)
Cocaine	567	60.6 (57.5–63.7)	368	39.4 (36.3–42.5)
Cocaine base paste	781	83.5 (81.0–85.8)	154	16.5 (14.2–19.0)

CI, confidence interval.

Table 2: Prevalence of psychiatric disorders according to age group.

Psychiatric Disorder	<18 years old (*n* = 473)			≥18 years old (*n* = 430)		
	n	%	(95%CI)	*n*	%	(95%CI)
Any psychiatric disorder	422	88.6	(85.4–91.2)	399	91.7	(88.7–94.0)
Any depressive disorder	99	20.9	(17.5–24.8)	105	24.4	(20.6–28.7)
Major depressive disorder	93	19.7	(16.3–23.5)	99	23.0	(19.3–27.3)
Dysthymia	6	1.3	(0.6–2.8)	6	1.4	(0.6–3.1)
Any anxiety disorder	128	27.1	(23.2–31.3)	114	26.5	(22.5–31.0)
Panic disorder	24	5.1	(3.4–7.5)	13	3.0	(1.8–5.1)
Social anxiety disorder	10	2.1	(1.1–3.9)	21	4.9	(3.2–7.4)
Separation anxiety disorder	19	4.0	(2.6–6.2)		—	
Specific phobia	22	4.7	(3.1–7.0)		—	
Obsessive compulsive disorder	25	5.3	(3.4–7.7)	35	8.1	(5.9–11.1)
Post-traumatic stress disorder	11	2.3	(1.3–4.2)	19	4.4	(2.8–6.8)
Generalised anxiety disorder	23	4.9	(3.2–7.2)	31	7.2	(5.1–10.1)
Any substance use disorder	369	77.4	(73.4–80.9)	344	79.1	(75.0–82.7)
Alcohol dependence	128	26.8	(23.0–31.0)	126	29.0	(24.9–33.4)
Alcohol abuse	23	4.9	(3.2–7.2)	20	4.6	(3.0–7.0)
Marijuana dependence	242	51.0	(46.4–55.5)	211	48.5	(43.8–53.2)
Marijuana abuse	65	13.7	(10.9–17.2)	63	14.5	(11.5–18.1)
Cocaine dependence (includes Cocaine base paste)	91	19.2	(15.9–23.1)	105	24.1	(20.3–28.4)

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Table 2: *Continued*

Psychiatric Disorder	<18 years old (*n* = 473)			≥18 years old (*n* = 430)		
	n	%	(95%CI)	*n*	%	(95%CI)
Cocaine abuse (includes Cocaine base paste)	10	2.1	(1.1–3.9)	11	2.5	(1.4–4.5)
Nicotine dependence	104	21.8	(18.3–25.7)	110	25.3	(21.4–29.6)
Attention deficit hyperactivity disorder	121	25.6	(21.8–29.7)		—	—
Combined type	54	11.4	(8.8–14.6)		—	—
Inattentive type	25	5.3	(3.4–7.7)		—	—
Hyperactive–Impulsive type	42	8.9	(6.6–11.8)		—	—
Any disruptive disorder	179	37.8	(33.6–42.3)		—	—
Conduct disorder	131	27.7	(23.8–31.9)		—	—
Oppositional defiant disorder	128	27.1	(23.2–31.3)		—	—
Antisocial personality disorder	-		—	276	64.9	(60.3–69.3)

Note. Cells with (—) are empty because these disorders were not assessed by the version of the Mini International Neuropsychiatric Interviews used because of the age of the participant.
CI, confidence interval.

Results

General description of the sample

Nine hundred and forty-eight young people agreed to participate, provided complete information for the variables included in this study and were included in the final analyses; 357 were serving their sentences in closed centres, 84 in semi-closed centres, 154 in centres operated by special assisted liberty programmes and 353 in assisted liberty programmes. The mean age of participants was 17.6 years (range 14–23), with 489 (52%) aged over 18 years old. Most of them (*n* = 71, 61%) did not pursue secondary studies. Just over a fifth (199, 21%) of participants mentioned having lived in a national service for minors residence prior to serving their current sentence, while 106 (11%) reported having spent some time living on the streets. A history of parental incarceration was common: a quarter (*n* = 235, 25%) of the participants had a father who had served or were serving time in prison at the time of the interview, and 88 (9%) reported that their mother had been or was currently in prison.

Table 1 shows the age of onset of the various criminal behaviours and illegal drug use.

Prevalence of psychiatric disorders

A large majority of participants (831, 90%) had a psychiatric disorder. Seven hundred and twenty-three (78%) had a substance use or dependence disorder,

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which proved to be the most common diagnosis in this cohort. In addition, 204 (22%) described symptoms of depression or dysthymia and 222 (24%) of one of the anxiety disorders. Among those under 18 years old, the second most prevalent diagnosis was conduct disorder, followed by oppositional defiant disorder and attention deficit hyperactivity disorder. There was a high rate of comorbidity. In the young adult subgroup (≥18 years old), 276 (64.9%) had an antisocial personality disorder (Table 2).

There was some relationship between the nature of disorder and crime (Tables 3a and 3b); depressive disorders were more prevalent among those convicted of burglary. Any anxiety disorder was more common among those convicted of murder or sexual offences than of any other crimes. Any substance use was highly prevalent except among sexual offenders (30.8%). In under 18-year-old offenders, ADHD and disruptive disorders were more common among those convicted of burglary, and less prevalent among sexual offenders.

Variables associated with depressive, anxiety and substance use disorders

The fully adjusted model revealed that the variables associated with depression or dysthymia were years of exposure to childhood maltreatment, had a history of living in streets, early onset of thieving behaviour, early age of public order offence and presence of an anxiety disorder. By contrast, higher educational attainment was inversely associated with having a depressive disorder.

The fully adjusted model for suffering from an anxiety disorder showed independently significant associations with having a deceased mother, an early history of violent crime, serving a sentence in a closed or semi-closed centre and having a depressive or a substance use disorder. As for depression, the higher a participant's educational level, the lower the probability of an anxiety disorder.

The fully adjusted model for any substance use disorder showed associations with early onset of thieving behaviour, early onset of marijuana use and having an anxiety disorder. There was no relationship between educational attainment and substance use. For further details, please see Table 4.

Discussion

We found a higher proportion of young offenders with some psychiatric morbidity than has previously been reported in Chile, even though we studied quite a limited range of disorders. The proportion was also higher than previously reported in offender samples elsewhere (Fazel et al., 2008). The relative frequency of disorders is consistent with other studies (Fazel et al., 2008). A recent study found that having multiple psychiatric disorders at baseline increased the probability of an individual having a psychiatric disorder 5 years later (Abram et al., 2015).

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Table 3a: Prevalence of psychiatric disorders in relation to category of crime.

Psychiatric disorder	Any depressive disorder			Any anxiety disorder			Any substance use disorder		
Type of offence	*n*	%	95%CI	*n*	%	95%CI	*n*	%	95%CI
Robbery	119	21.0	(17.9–24.6)	134	23.7	(20.3–27.4)	455	80.4	(76.9–83.5)
Burglary	57	28.2	(22.4–34.8)	49	24.3	(18.8–30.7)	166	82.2	(76.3–86.9)
Murder	16	20.3	(12.7–30.6)	23	29.1	(20.1–40.1)	56	70.9	(59.9–79.9)
Sexual offence	6	23.1	(10.6–43.2)	8	30.8	(16.0–51.0)	8	30.8	(16.0–51.0)
Other[1]	6	18.8	(8.6-36.3)	7	21.9	(10.7–39.6)	21	65.6	(47.6–80.0)

[1]Other category includes motoring offences, handling stolen goods, public order offences, among others.
CI, confidence interval.

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Table 3b: Prevalence of psychiatric disorders assessed only among offenders under 18 years old (n = 474) in relation to category of crime.

Psychiatric disorder	ADHD[1]			Disruptive disorders		
Type of offence	n	%	95%CI	n	%	95%CI
Robbery	69	22.5	(18.1–27.5)	116	37.8	(20.3–27.4)
Burglary	40	37.7	(29.0–47.4)	45	42.5	(18.8–30.7)
Murder	7	25.0	(12.2–44.4)	8	28.6	(20.1–40.1)
Sexual offence	2	13.3	(3.2–41.9)	2	13.3	(16.0–51.0)
Other [2]	5	27.8	(11.7–52.7)	9	50.0	(27.8–72.2)

[1]ADHD, Attention Deficit Hyperactivity Disorder.
[2]Other category includes motoring offences, handling stolen goods, public order offences, among others.
CI, confidence interval.

We found that rates of anxiety or depressive disorders were lower the higher the educational level achieved by the participant. This suggests a protective role for education. Perhaps it helps resourcefulness in self-management of psychopathology; perhaps it has a preventive role. Implications are that, perhaps particularly when young offenders have missed out on education, the criminal justice system should try to fill that gap. Our findings with respect to street living also echo northern hemisphere studies (Lader et al., 2000), as does early use of marijuana (Miettunen et al., 2014) and history of childhood abuse (Gretton and Clift, 2011; Moore et al., 2013). Greater awareness of this among service providers could help to identify the most vulnerable young people.

It is particularly important to note that the high prevalence of substance use disorders related both to other mental disorder and offending in this sample, but as our work was cross-sectional analysis and we gathered information about stressful life-events retrospectively, we could not deal with the causality question of how these problems were related. This would require a longitudinal approach.

Since 2007, in Chile, there has been an explicit governmental policy that guarantees treatment of substance use disorder for all people under 20 years old. Since 2006, the same has been guaranteed for people of 15 years or older with depression. Unfortunately, none of the people included in this study had benefited from these rulings. None was in treatment during data collection (2013). We continue to call upon authorities to provide urgently needed help to these adolescents and young adults who have the same rights as others. This is especially urgent given the increasing number of young people convicted of an offence each year since 2008. This call for help for young offenders has not been the only one in recent years in Chile (Gaete et al., 2014; Prato et al., 2011; Rioseco et al., 2009) or in other countries worldwide (Alcorn, 2014).

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Table 4: Factors associated with psychiatric disorders.

	Any Depressive Disorder			Any Anxiety Disorder			Any Substance Use Disorder		
Variable	Unadjusted OR (95% CI)	Model 1[1] OR (95% CI)	Model 2[2] OR (95% CI)	Unadjusted OR (95% CI)	Model 1[1] OR (95% CI)	Model 2[2] OR (95% CI)	Unadjusted	Model 1[1] OR (95% CI)	Model 2[2] OR (95% CI)
Age	1.13 (1.02–1.24)	1.11 (0.98–1.25)	1.07 (0.94–1.22)	1.17 (1.06–1.28)	1.10 (0.98–1.24)	1.07 (0.94–1.21)	1.09 (0.99–1.21)	1.15 (1.00–1.32)	1.14 (0.99–1.32)
Educational level	0.79 (0.67–0.94)	0.74 (0.61–0.89)	0.79 (0.64–0.96)	0.85 (0.72–1.00)	0.77 (0.64–0.92)	0.83 (0.69–1.00)	0.87 (0.74–1.02)	0.86 (0.71–1.04)	0.90 (0.73–1.09)
Life stressors									
Years exposed to physical abuse	1.16 (1.08–1.25)	1.10 (1.02–1.19)	1.08 (1.00–1.18)	1.11 (1.03–1.20)	1.07 (0.99–1.16)	1.04 (0.95–1.13)	1.19 (1.04–1.35)	1.12 (0.98–1.27)	1.09 (0.96–1.26)
Having lived on the street	2.38 (1.54–3.67)	1.67 (1.04–2.69)	1.67 (1.02–2.76)	1.55 (0.99–2.41)	1.20 (0.73–1.95)	1.02 (0.61–1.71)	1.48 (0.86–2.56)	1.03 (0.57–1.87)	0.96 (0.52–1.75)
Deceased father	1.11 (0.65–1.89)	1.03 (0.59–1.82)	1.00 (0.56–1.80)	1.37 (0.83–2.25)	1.12 (0.65–1.92)	1.11 (0.63–1.96)	1.12 (0.64–1.95)	1.03 (0.56–1.89)	1.11 (0.59–2.08)
Deceased mother	1.77 (0.84–3.71)	1.28 (0.57–2.85)	0.93 (0.39–2.21)	3.06 (1.52–6.17)	2.34 (1.11–4.92)	2.31 (1.03–5.20)	1.12 (0.48–2.61)	1.06 (0.43–2.62)	1.08 (0.41–2.83)
History of father in prison	1.18 (0.84–1.64)	1.01 (0.70–1.47)	0.92 (0.62–1.35)	1.57 (1.14–2.17)	1.36 (0.96–1.94)	1.40 (0.97–2.02)	1.22 (0.86–1.74)	1.05 (0.71–1.55)	1.00 (0.67–1.48)
History of mother in prison	1.14 (0.69–1.87)	1.04 (0.60–1.81)	1.00 (0.56–1.77)	1.61 (1.02–2.55)	1.26 (0.76–2.11)	1.33 (0.78–2.28)	0.92 (0.55–1.52)	0.70 (0.40–1.25)	0.67 (0.38–1.21)
Age onset of criminal behaviours									
Thieving behaviour	2.26 (1.52–3.35)	1.93 (1.19–3.12)	2.12 (1.28–3.50)	1.13 (0.80–1.58)	0.88 (0.58–1.33)	0.72 (0.47–1.12)	2.40 (1.74–3.32)	1.54 (1.02–2.35)	1.53 (1.00–2.35)
Grand theft	1.47 (1.08–2.01)	1.02 (0.69–1.50)	1.06 (0.71–1.58)	1.15 (0.85–1.56)	0.93 (0.64–1.36)	0.93 (0.63–1.38)	1.44 (1.04–1.99)	0.87 (0.57–1.32)	0.86 (0.56–1.31)
Violent robbery	1.31 (0.95–1.79)	0.84 (0.58–1.31)	0.83 (0.54–1.27)	1.22 (0.90–1.66)	1.03 (0.70–1.54)	1.07 (0.70–1.62)	1.67 (1.22–2.28)	1.04 (0.68–1.60)	1.10 (0.71–1.69)
Drug trafficking	0.39 (0.89–1.68)	0.16 (0.21–1.25)	0.16 (0.02–1.26)	0.55 (0.16–1.88)	0.79 (0.22–2.89)	1.03 (0.28–3.86)	2.56 (0.59–11.12)	4.45 (0.55–35.75)	4.91 (0.60–40.26)
Violent crime	1.74 (1.16–2.62)	1.36 (0.86–2.14)	1.22 (0.76–1.97)	1.64 (1.10–2.44)	1.66 (1.07–2.60)	1.62 (1.01–2.59)	0.96 (0.62–1.48)	0.78 (0.47–1.28)	0.69 (0.41–1.15)

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Table 4: *Continued*

Variable	Any Depressive Disorder			Any Anxiety Disorder			Any Substance Use Disorder		
	Unadjusted OR (95% CI)	Model 1[1] OR (95% CI)	Model 2[2] OR (95% CI)	Unadjusted OR (95% CI)	Model 1[1] OR (95% CI)	Model 2[2] OR (95% CI)	Unadjusted	Model 1[1] OR (95% CI)	Model 2[2] OR (95% CI)
Public order offence	2.19 (1.47–3.24)	2.16 (1.40–3.33)	2.44 (1.55–3.84)	0.80 (0.51–1.26)	0.81 (0.50–1.32)	0.64 (0.38–1.06)	1.20 (0.76–1.91)	0.96 (0.58–1.58)	0.94 (0.56–1.56)
Firearm carrying	1.31 (0.34–1.82)	0.78 (0.51–1.20)	0.80 (0.51–1.26)	1.04 (0.76–1.43)	0.76 (0.50–1.15)	0.76 (0.49–1.17)	2.20 (1.46–2.74)	1.31 (0.86–2.02)	1.42 (0.92–2.18)
Age onset of illegal drug use									
Marijuana use	1.30 (0.86–1.98)	0.70 (0.42–1.15)	0.60 (0.35–1.01)	1.27 (0.85–1.89)	1.16 (0.71–1.87)	1.09 (0.65–1.83)	3.93 (2.76–5.59)	3.31 (2.15–5.09)	3.42 (2.21–5.30)
Cocaine paste use	1.88 (1.28–2.75)	1.28 (0.81–2.02)	1.43 (0.89–2.30)	1.09 (0.73–1.62)	0.75 (0.47–1.21)	0.69 (0.42–1.13)	1.81 (1.12–2.93)	1.15 (0.66–2.02)	1.19 (0.67–2.09)
Cocaine use	1.60 (1.17–2.19)	1.23 (0.82–1.83)	1.27 (0.84–1.93)	1.12 (0.82–1.52)	0.92 (0.62–1.37)	0.88 (0.58–1.32)	1.93 (1.38–2.72)	1.03 (0.66–1.60)	1.06 (0.68–1.66)
Type of programme (0 = AL; 1 = C)[3]	1.62 (1.19–2.22)	1.17 (0.76–1.80)	1.04 (0.67–1.64)	2.13 (1.57–2.90)	1.74 (1.15–2.63)	1.77 (1.15–2.73)	1.26 (0.92–1.72)	0.73 (0.47–1.14)	0.66 (0.42–1.04)
Any Depressive disorder	—		—	4.01 (2.87–5.60)		3.83 (2.64–5.57)	1.83 (1.20–2.79)		1.34 (0.83–2.17)
Any Anxiety disorder	4.01 (2.87–5.60)		3.88 (2.66–5.64)	—		—	1.93 (1.28–2.92)		2.05 (1.27–3.32)
Any Substance use disorder	1.83 (1.20–2.79)		1.41 (0.87–2.26)	1.93 (1.28–2.92)		2.01 (1.25–3.34)	—		—

[1]Model 1 = Adjusted by all variables except for 'Any Anxiety disorders' and 'Any Substance use disorder'

[2]Model 2 = Adjusted by all variables.

[3]AL = Assisted Liberty (special assisted liberty programmes or assisted liberty programmes) centre; C = Closed or semi-closed centre.

Multivariable logistic regression analysis. CI, confidence interval; OR, odds ratio.

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There were some limitations to our study. We included only boys, so it is not possible to draw any conclusions about the mental health of young female offenders. In diagnosing psychiatric illnesses, mental health assessments should include as much information as possible, for example information from the family, the health system and observations about changes in symptoms over a long period of time, but because of the limited time available, we based the diagnoses in our study on one interview only with the participants; therefore, we cannot consider the diagnoses to be definitive. Nonetheless, we present a good approximation of the mental health needs of this vulnerable population. Participants' histories of stressful events and age of onset of criminal behaviours and substance use were based on their own recall, and there could have been some recall bias. Some variables that may be considered to be confounders were not available to us, for example intellectual capacity and parental psychopathology; therefore, our findings may have some residual confounding factors. Moreover, as not all disorders were assessed in the whole study population, there may have been additional confounding effects in the associations found.

Conclusions

We recruited one of the largest samples of young offenders, not only in Chile but also anywhere in the world. We found a high prevalence of substance misuse disorders, depressive conditions and anxiety disorders, and potentially important associations between certain disorders and certain crimes. Early onset of criminal behaviour was associated with a greater likelihood of these disorders, so it is important that young offenders get appropriate mental health examinations. A history of traumatic events in childhood was also associated with mental disorder. Early onset marijuana users were more likely than others to be suffering from disorders because of substance use at the time of assessment.

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